

# 7 Noise Element





*The General Plan aims to identify the major noise sources in the Planning Area and establish policies and programs that mitigate potential impacts.*

## 7.1 INTRODUCTION AND PURPOSE

The purpose of the Noise Element is to identify the major noise sources that exist in the Planning Area and to establish policies and programs that the City can enact to mitigate potential impacts through both preventative and responsive measures. Noise from motor vehicles and aircraft operations are regulated by State and federal agencies. Noise considerations also inform the location of industrial land uses and transportation facilities, since they are common sources of excessive noise levels; and the location of noise-sensitive uses such as residences, schools, churches, and hospitals, so that they may be less affected by noise.

### RELATIONSHIP TO STATE LAW

State law (Government Code Section 65302(f)) requires general plans to include a Noise Element that identifies and appraises noise problems in the community. The Noise Element is required to analyze and quantify, to the extent practicable and as determined by the jurisdiction's legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways;
- Primary arterial and major local streets;

- Passenger and freight line railroad operations and ground rapid transit systems;
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation;
- Local industrial plants, including, but not limited to, railroad classification yards; and,
- Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

The Noise Element must include implementation measures and possible solutions that address existing and foreseeable noise problems.

### RELATIONSHIP OTHER ELEMENTS

The Noise Element is closely related to the Land Use; Circulation; Housing; and Parks, Recreation, and Open Space elements. According to State law, the noise contours must guide the pattern of land uses in the Land Use Element to minimize the exposure of residents to excessive noise. The Circulation Element bears a strong relationship to the Noise Element because the transportation system is the primary source of noise in Belmont, and future noise contour information is based on

traffic volumes and speeds, as well as railroad and airport operations. The Noise Element relates to the Housing Element by promoting desirable residential environments that are buffered from undesirable noise impacts. The Parks, Recreation, and Open Space Element also has a strong relationship to the Noise Element. Excessive noise can adversely affect the enjoyment of recreational activities in designated parks and open spaces, and open space can also be used to buffer sensitive land uses from noise sources through the use of setbacks and landscaping.

## RELATIONSHIP TO VISION AND GUIDING PRINCIPLES

The Noise Element has connections to many of the values in the Belmont Community Vision, and it most closely supports:

- Belmont's small-town ambiance sets itself apart as a tranquil, inclusive, safe and desirable place to live, work and play.
- Our wooded residential areas are diverse, peaceful and well maintained.

## 7.2 NOISE CHARACTERISTICS AND MEASUREMENT

Noise is commonly defined as undesirable or unwanted sound. Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers,

to the intermittent disturbances of overhead aircraft, to the fairly constant noise generated by traffic on major arterials or freeways.

Three aspects of community noise are used in assessing the noise environment:

- Level is the magnitude or loudness of sound. Sound levels are measured and expressed in decibels (dB) with 10 dB roughly equal to the threshold of hearing. Transient noise events may be described by their maximum noise level (L<sub>max</sub>), measured in decibels "A-weighted" to correct for the frequency response of the human ear (dBA). Figure 7-1 shows the decibel levels associated with different common sounds.
- Frequency is the composition or spectrum of the sound. Frequency is a measure of the pressure fluctuations per second, measured in units of hertz (Hz). The characterization of sound level magnitude with respect to frequency is the sound spectrum, often described in octave bands, which divide the audible human frequency range (e.g., from 20 to 20,000 Hz) into ten segments.
- Variation is sound level with time, measured as noise exposure. Most community noise is produced by many distant noise sources that change gradually throughout the day and produce a relatively steady background noise having

no identifiable source. Identifiable events of brief duration, such as aircraft flyovers, cause the community noise level to vary from instant to instant. A single number called the equivalent sound level or  $L_{eq}$  describes the average noise exposure level over a period of time. Hourly  $L_{eq}$  values are called Hourly Noise Levels.

## REPORTING NOISE LEVELS

Measuring and reporting noise levels involves accounting for variations in sensitivity to noise during the daytime versus nighttime hours. Noise descriptors used for analysis need to factor in human sensitivity to nighttime noise when background noise levels are generally lower than in the daytime when outside noise intrusions are more noticeable. Common descriptors include the Community Noise Equivalent Level (CNEL) and the Day-Night Average Level (DNL). Both reflect noise exposure over an average day with weighting to reflect the increased sensitivity to noise during the evening and night. The two descriptors are roughly equivalent.

Knowledge of the following relationships is helpful in understanding how changes in noise and noise exposure are perceived:

- Except under special conditions, a change in sound level of 1 dB cannot be perceived;
- A 3 dB change is considered a just-noticeable difference;

- A 5 dB change is required before any noticeable change in community response would be expected. A 5 dB increase is often considered a significant impact; and
- A 10 dB increase is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

In establishing noise contours for land use planning, it is customary to ignore noise attenuation afforded by buildings, roadway elevations, and depressions, and to minimize the barrier effect of natural terrain features. The result is a worst-case estimate of the existing and future (projected) noise environment. The purpose of noise contours is to identify the potential need for more detailed acoustical studies, not to predict with certainty the noise level throughout the city. The assumption is that it is desirable to overestimate the potential noise at a future noise-sensitive development site rather than underestimate the noise environment and allow for potentially incompatible land use development.

## NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Places where people live, sleep, recreate, worship, and study generally are considered to be sensitive to

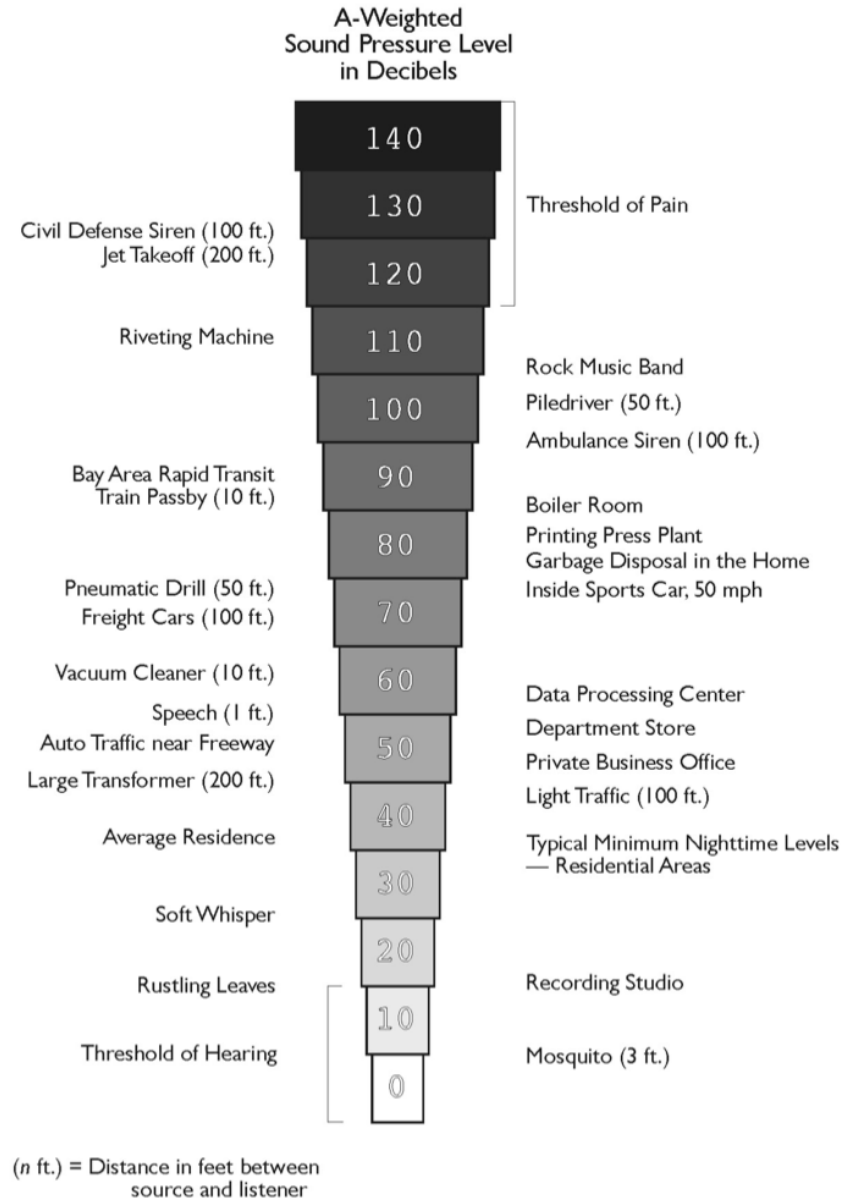
noise because intrusive noise can be disruptive to these activities.

### 7.3 NOISE GENERATION IN BELMONT

The major noise sources in Belmont are related to roadways and vehicle traffic. Rail service along the Caltrain railway and aircraft from the San Carlos Airport also produce noise in Belmont. Noise produced by industrial or commercial activity has a negligible effect on the city's residential noise environment. Figure 7-2 maps existing noise contours. Elevated noise levels are located in proximity to Ralston Avenue, Alameda de las Pulgas, El Camino Real, and U.S. 101, and are primarily concentrated in eastern Belmont.

According to common practice, maximum noise levels of 60 dB DNL are considered “normally acceptable” for unshielded single-family residential development. Noise levels from 60 dB to 70 dB fall within the “conditionally acceptable” range, and those in the 70 to 75 dB range are considered “normally unacceptable.” Noise levels up to 65 dB are considered normally acceptable for multi-family housing and lodging, while noise levels up to 70 dB are normally acceptable for most other uses.

FIGURE 7-1: NOISE MEASUREMENT





*The Caltrain railway is one of the main noise sources in Belmont.*



*Ralston Avenue and El Camino Real are two major streets with high levels of noise.*

## TRAFFIC NOISE

The level of traffic noise depends on three factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Vehicle noise is a combination of the noises produced by the engine, exhaust, tires, and wind generated by taller vehicles. Other factors that affect the perception of traffic noise include: distance from the roadway, terrain, vegetation, and natural and structural obstacles. While tire noise from autos is generally located at ground level, truck noise sources can be located as high as 10 to 15 feet above the roadbed due to tall exhaust stacks and higher engines.

Noise exposure contours for Belmont's major roadways were modeled by applying the Federal Highway Administration's (FHWA) noise modeling procedure. Traffic data representing annual average traffic volumes and truck mix, for existing conditions, were obtained from the engineers working on the General Plan Update and Caltrans. Using this data and the FHWA methodology, traffic noise levels were calculated for existing traffic volumes.

Street traffic noise is the most extensive noise problem faced by Belmont, and noise from US 101 has the greatest existing and projected street noise generation. Other major streets with high levels of noise include El Camino Real, Ralston Avenue,

and Alameda de las Pulgas. Much of the eastern portion of Belmont has elevated noise levels due to proximity to major traffic corridors. The area around and to the east of El Camino Real, including some residential neighborhoods, experiences a minimum noise level of 60 dB DNL, which is above the typical "normally acceptable" range of noise for single-family residential areas. In general, the further development is from major streets, especially US 101, the less noise is likely to be experienced.

### Projected Noise Sources and Levels

Future development within the Planning Area will result in increased traffic volumes, thus increasing noise levels in some areas. Projected future noise contours are illustrated in Figure 7-3.

Locating noise-sensitive uses away from high-noise areas (e.g. major transportation routes) and buffering noise levels through design features will help minimize future noise-related land use conflicts. Many of the areas with elevated noise levels are in or around the Belmont Village PDA and the El Camino Real corridor, which are likely to see intensified development in the coming years; requirements for noise mitigations to acceptable levels are discussed in detail later in this chapter. Policies in this chapter also establish review criteria for certain land uses to ensure that future noise levels will not

exceed acceptable levels near noise-sensitive land uses.

## RAILROAD NOISE

The diesel-powered Caltrain commuter rail line runs through Belmont, parallel to El Camino Real. Union Pacific runs diesel-powered freight trains along the rail lines during periods when Caltrain is not using the tracks, particularly in the late evening or early morning. The diesel trains do have noise associated with them; however, it is much less substantial than roadway and vehicular traffic in Belmont. In addition, noise from trains occurs intermittently, for short periods, in contrast to the virtually constant presence of automobile-generated noise. There are plans to modernize and electrify the rail line in coming years, which will provide a number of benefits for the Belmont community including reduced noise. Electrification of Caltrain is anticipated to be completed in 2021.

## AIRPORT NOISE

The greatest potential for noise intrusion from airports occurs when aircraft land, take off, or run their engines while on the ground. About two miles southeast of Belmont, San Carlos Airport is located in the City of San Carlos east of US 101. San Carlos Airport is owned and operated by San Mateo County, and it is designated as a reliever airport in the National Plan of Integrated Airport Systems, which means that it provides general

aviation pilots and users with an alternative to congested commercial service airports like San Francisco International Airport. Future noise contours developed in the 2015 Draft Airport Land Use Compatibility Plan for the airport show noise levels elevated above 60 dB CNEL extending over a small portion of southeastern Belmont, along Shoreway Road. No portions of the Planning Area are projected to be within the 65 dB CNEL or higher noise contours for the airport. The future noise contours for San Carlos Airport are shown in Figure 7-4.

San Francisco International Airport is located about 10 miles north of Belmont. According to the airport's existing (2014) and projected future (2019) noise exposure maps, the noise contours above 60 dB CNEL associated with the airport do not extend to the Planning Area; however, parts of eastern Belmont are occasionally impacted by noise from the airport's air traffic, but this occurs infrequently and is not considered a major problem.

## OTHER NOISE SOURCES

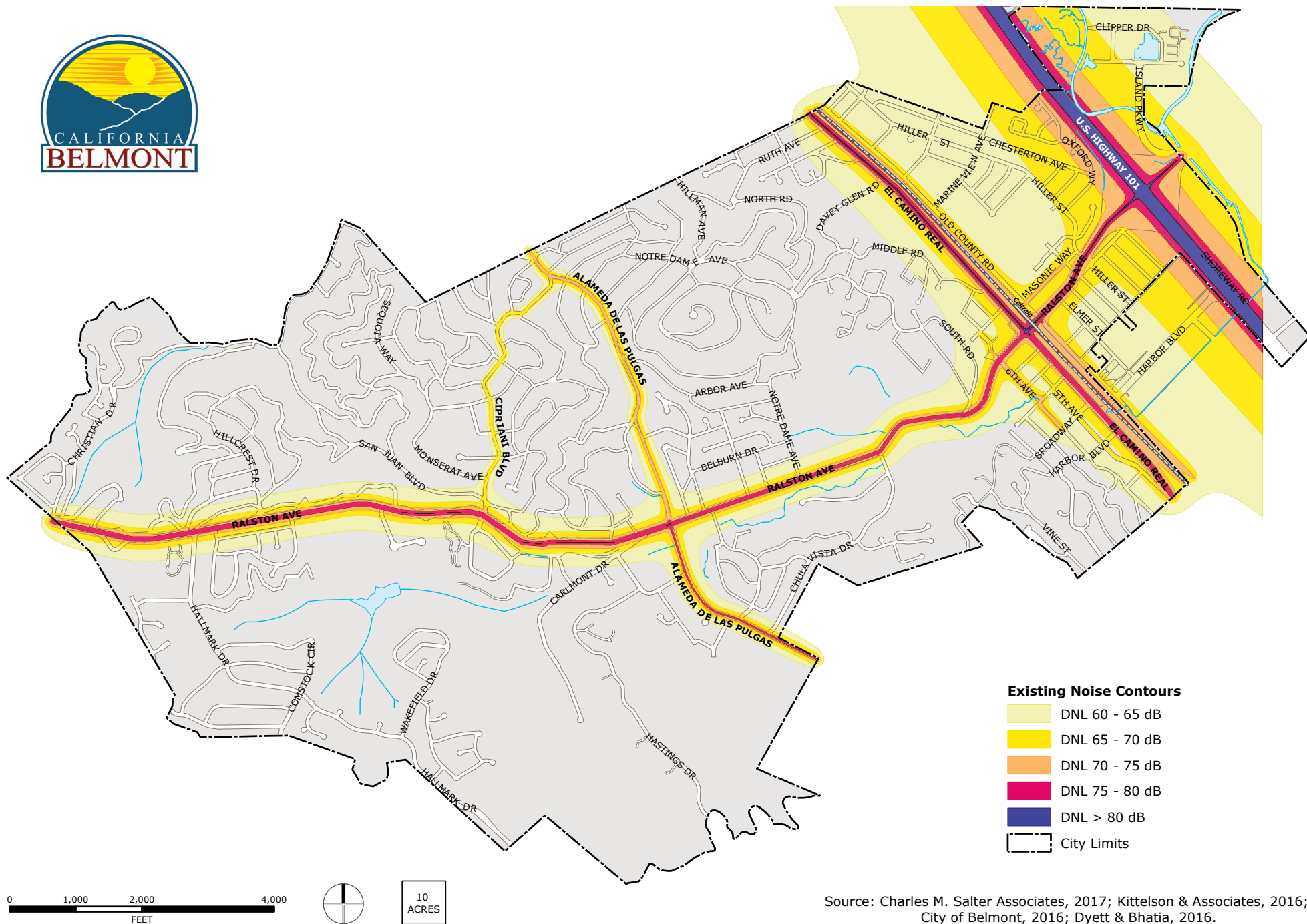
### *Service Commercial and Light Industrial Uses*

Noise sources associated with light industrial and service commercial uses such as automotive repair facilities, car washes, and recycling yards, are found at various locations in Belmont. The noise emissions of these types of uses are dependent on many factors and



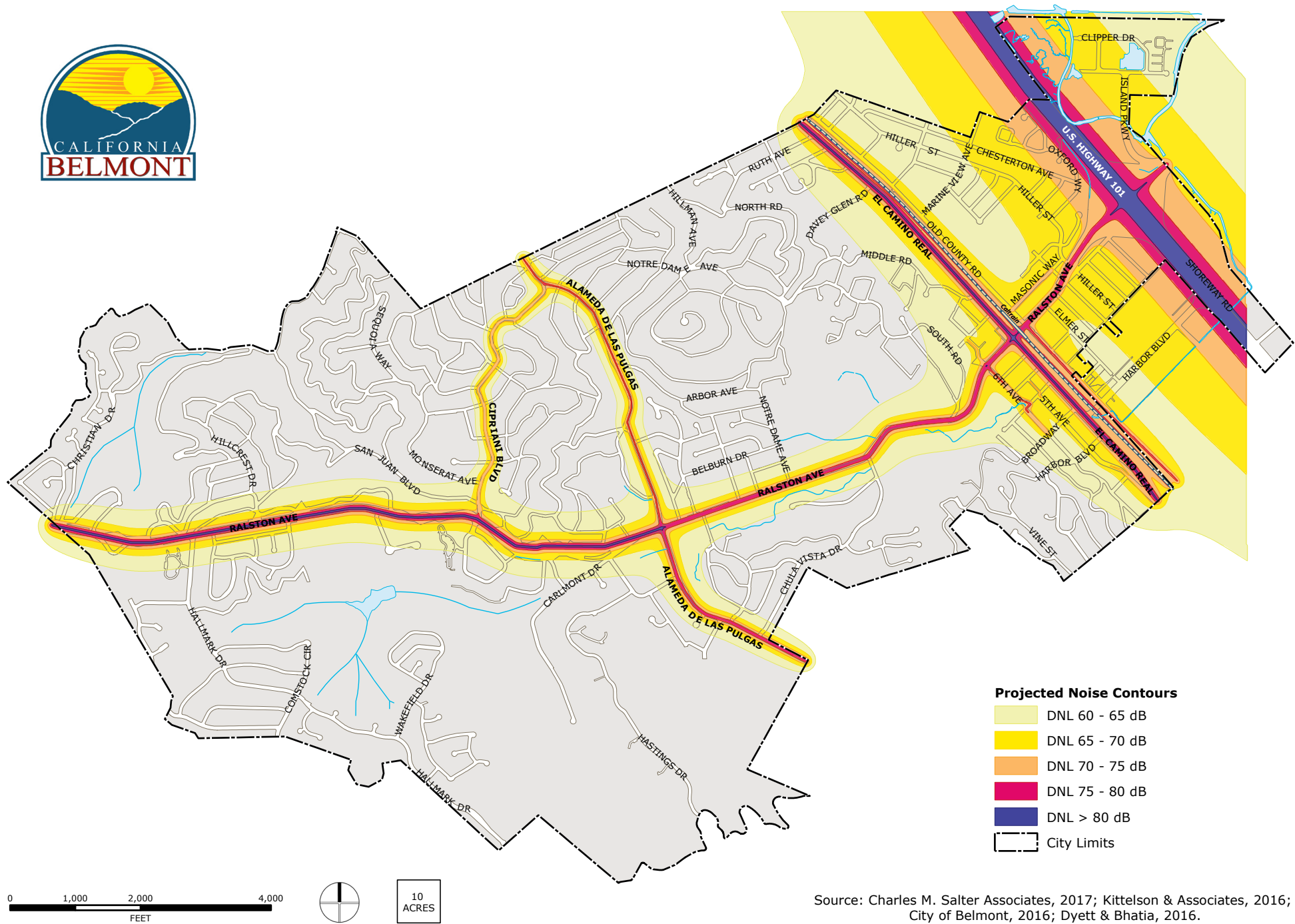
*The General Plan aims to work with Caltrain and other transportation agencies to mitigate transportation-related noise impacts on residential and sensitive areas of Belmont.*

FIGURE 7-2: EXISTING NOISE CONTOURS



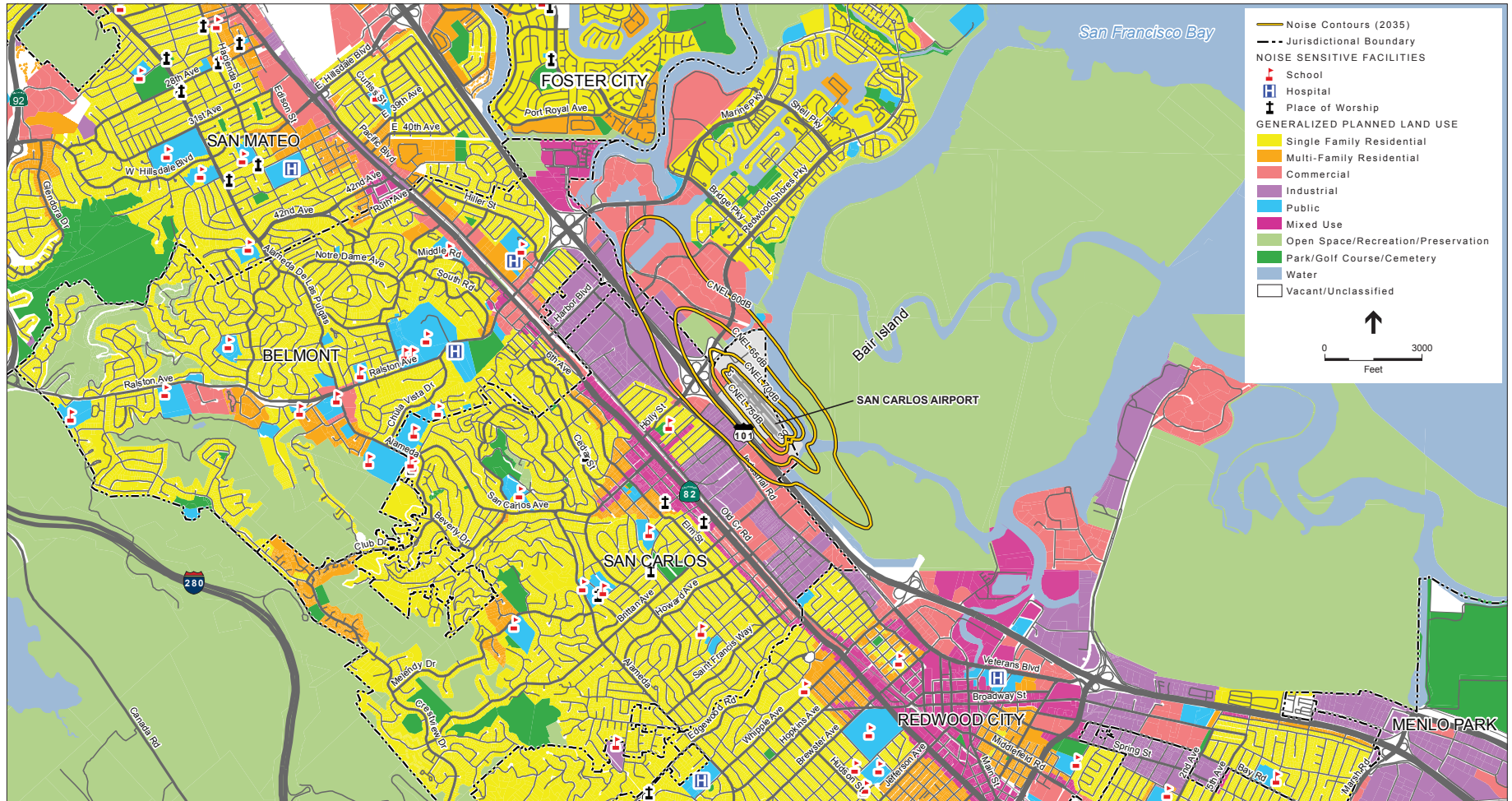
Source: Charles M. Salter Associates, 2017; Kittelson & Associates, 2016; City of Belmont, 2016; Dyett & Bhatia, 2016.

FIGURE 7-3: FUTURE NOISE CONTOURS



Source: Charles M. Salter Associates, 2017; Kittelson & Associates, 2016; City of Belmont, 2016; Dyett & Bhatia, 2016.

FIGURE 7-4: SAN CARLOS AIRPORT NOISE CONTOURS



SOURCE: Belmont, 1982; San Mateo County, 1986; Foster City, 1993; Menlo Park, 1994; San Carlos, 2009; City of San Mateo, 2010; Redwood City, 2010; ESRI, 2014; ESA Airports, 2015

are therefore difficult to quantify precisely. Nonetheless, noise generated by these uses contributes to the ambient noise environment in their immediate vicinity and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

### Construction and Other Equipment

Construction can be another substantial, though short-term, source of noise. Construction is most disruptive when it takes place near sensitive land uses, or occurs at night or in early morning hours. The dominant construction equipment noise source is usually a diesel engine without sufficient muffling. In a few cases, however, such as impact pile driving or pavement breaking, this noise source dominates.

Other portable or small-scale pieces of equipment may also produce noise. Mechanical equipment such as pumps and fans may produce low noise levels, but continuously and for substantial distances. Rooftop or otherwise exposed mechanical equipment can also produce constant and disturbing noises. Portable power equipment, such as leaf blowers and drills, can produce very high noise levels at the location of the work. Other amplified sounds such as automotive audio equipment or loudspeakers also create noise exposure.

### Parks and School Playing Fields

There are numerous park and school uses in Belmont. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be higher.

## 7.4 REGULATIONS AND NOISE EXPOSURE STANDARDS

Federal and State standards, and City standards established in this General Plan, are designed to protect community members and sensitive receptors from noise hazards and establish criteria to mitigate noise impacts accordingly.

### FEDERAL REGULATIONS

#### Department of Housing and Urban Development (HUD)

HUD's environmental criteria and standards are presented in Title 24 of the Code of Federal Regulations (CFR), Part 51. New construction proposed in high noise areas (exceeding 65 dB DNL) must incorporate noise attenuation features to maintain acceptable interior noise levels (45 dB DNL). It is assumed that with standard construction, any building will provide sufficient attenuation



*Light Industrial uses in Belmont can generate noise from automotive facilities, car washes, and recycling yards.*



*Schools and parks also contribute to the noise environment in Belmont. However, these land uses are sensitive to excess noise as well.*

to achieve an interior noise level of 45 dB DNL or less if the exterior noise level is 65 dB DNL or less. Development in a “normally unacceptable noise zone” (exceeding 65 dB, but not exceeding 75 dB) requires a minimum of 5 dB of additional noise attenuation for buildings having noise sensitive uses if the day-night average is greater than 65 dB, but does not exceed 70 dB, or a minimum of 10 dB of additional noise attenuation if the day-night average is greater than 70 dB, but does not exceed 75 dB.

#### **Federal Highway Administration (FHWA)**

Title 23 of the CFR, Part 772 (Procedures for Abatement of Highway Traffic Noise and Construction Noise) requires an assessment of noise and consideration of noise abatement for proposed federal or federal-aid highway construction projects on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. FHWA considers noise abatement for sensitive receivers, such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals when “worst-hour” noise levels approach or exceed 67 dB Leq.

#### **Federal Transit Administration (FTA)**

The FTA uses noise vibration impact criteria for buildings with noise sensitive uses, residences, and institutional land uses near

railroads. The noise vibration thresholds for residences and buildings where people normally sleep are 72 VdB for frequent vibration events (more than 70 vibration events of the same source per day), 75 VdB for occasional vibration events (30 to 70 vibration events of the same source per day), and 80 VdB for infrequent vibration events (less than 30 vibration events of the same source per day).

#### **Federal Railroad Administration (FRA)**

The FRA’s Office of Safety is responsible for enforcing the Railroad Noise Emissions Compliance Regulation that sets maximum sound levels from railroad equipment and for regulating locomotive horns.

#### **Federal Aviation Administration (FAA)**

Enforced by the FAA, Title 14 of the CFR, Part 150 describes the procedures, standards and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs. Title 14 also identifies the land uses that are normally compatible with various levels of noise exposure. The FAA has determined that sound levels up to 45 dB CNEL are acceptable within residential buildings.

### **STATE REGULATIONS**

The California Building Standards Code (Title 24 of the California Code of Regulations (CCR)) provides regulations for

both exterior and interior sound insulation. For general residential uses, the regulations specify that existing and future interior noise levels generated by exterior noise sources shall not exceed 45 dB in any habitable room with windows closed. Future noise levels must be predicted at least 10 years from the time of building permit application. CCR Title 24 standards are enforced through the building permit application process.

### GENERAL PLAN NOISE STANDARDS

With the proposed intensification of land uses in Belmont, especially in the eastern portion of the city, noise control will be an increasing consideration for infrastructure and new development, particularly for infill residential projects. Major cities in California commonly consider maximum noise levels of 65 dB to be “normally acceptable” for unshielded residential development including outdoor space in an urban environment; suburban communities, by contrast, often prefer a 60 dB threshold. Noise levels from 65 dB to 70 dB fall within the “conditionally acceptable” range, and those in the 70 to 75 dB range are considered “normally unacceptable.”

The General Plan is consistent with noise control practice in urban areas, employing 60 dB as being a desirable level, but accepting 65 dB as being in the “normally acceptable” range for noise from transportation sources. This policy supports the development of infill

residential projects, as well as non-residential infill projects by setting a realistic, achievable threshold of impact for new development.

Table 7-1 shows the community noise exposure matrix, establishing criteria the City will use to evaluate land use compatibility based on noise emanating from all sources. This matrix is adapted from guidelines provided by the State Office of Planning and Research.

Table 7-2 indicates acceptable limits of noise for sensitive land uses for both exterior and interior environments from transportation sources. While Table 7-1 establishes standards to help the City determine the appropriateness of locating specific uses in noise-prone environments, Table 7-2 provides standards that development shall attain through noise attenuation measures. Table 7-3 provides standards for noise from stationary, non-transportation noise sources such as, but not limited to, industrial facilities, automotive servicing, car washes, equipment yards, entertainment venues, hotels, and shopping centers. These standards apply to the noise sources themselves; noise caused by motor vehicles traveling to and from the site is exempt from this standard.

#### *City of Belmont Noise Ordinance*

Chapter 15, Article 8 of the City of Belmont’s Municipal Code contains the City’s Noise Ordinance, which establishes exterior noise level standards for residential and non-

**TABLE 7-1: Community Noise Exposure Matrix**

Land Use Category	Common Noise Exposure L <sub>dn</sub> or CNEL, dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes	Green	Yellow	Yellow	Yellow	Brown	Red
Residential - Multi. Family	Green	Green	Yellow	Yellow	Brown	Red
Transient Lodging - Motels, Hotels	Green	Green	Yellow	Yellow	Brown	Red
Schools, Libraries, Churches, Hospitals, Nursing Homes	Green	Green	Green	Yellow	Brown	Red
Auditoriums, Concert Halls, Amphitheaters	Yellow	Yellow	Yellow	Yellow	Brown	Brown
Sports Arena, Outdoor Spectator Sports	Yellow	Yellow	Yellow	Yellow	Brown	Brown
Playgrounds, Neighborhood Parks	Green	Green	Green	Green	Brown	Red
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Green	Green	Green	Green	Brown	Red
Office Buildings, Businesses Commercial and Professional	Green	Green	Green	Green	Yellow	Brown
Industrial, Manufacturing, Utilities, Agriculture	Green	Green	Green	Green	Yellow	Brown

**INTERPRETATION**

**Normally Acceptable**

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conversational construction, without any special noise insulation requirements.

**Conditionally Acceptable**

New constructions or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

**Normally Unacceptable**

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

**Clearly Unacceptable**

New construction or development should generally not be undertaken.

residential uses, and interior noise level standards for multi-family residential uses.

Following adoption of the General Plan, the acceptable ranges for interior and exterior noise levels in the Noise Ordinance will be updated to be consistent with this General Plan. It will specify maximum hourly noise levels of outdoor activity areas and indoor spaces for specified land use types; measurement standards; uniform guidelines for acoustical studies based on current professional standards; and enforcement procedures.

The Noise Ordinance will also establish performance standards for noise reduction for new residential development that may be exposed to community noise levels above 65 dB CNEL, based on the target acceptable noise levels for outdoor activity levels and interior spaces in Tables 7-2 and 7-3. Noise mitigation measures that may be considered to achieve these noise level targets include but are not limited to the following:

- All façades must be constructed with substantial weight and insulation;
- Sound-rated windows with enhanced noise reduction for habitable rooms;
- Sound-rated doors with enhanced reduction for all exterior entries for habitable rooms;
- Minimum setbacks and exterior barriers;

Source: Office of Planning and Research, State of California Draft General Plan Guidelines, 2015.

- Acoustic baffling of vents is required for chimneys, attic and gable ends; and
- Installation of a mechanical ventilation system affording comfort and fresh air under closed window conditions.

Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified Acoustical Consultant submits information demonstrating that the required reductions to meet the specific targets for outdoor activity areas and interior spaces can be achieved and maintained.

**TABLE 7-2: Transportation (Non-aircraft) Noise Sources**

Noise-Sensitive Land Use <sup>2</sup>	Outdoor Activity Areas <sup>1</sup>	Interior Spaces	
	DNL/CNEL, dB	DNL/CNEL, dB	Leq dB
Single-family Residential	60	45	---
Multi-family Residential	65	45	---
Transient Lodging	65	45	---
Hospitals, Nursing Homes	65	45	---
Theaters, Auditoriums, Music Halls	---	---	35
Churches, Meeting Halls	65	---	45
Office Buildings	---	---	45
Schools, Libraries, Museums	---	---	45

Notes:

1. Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks, or common recreation areas of multi-family residences. Where the location of outdoor activity areas is unknown or is not applicable, the exterior noise level standard shall be applied to the property line of the receiving land use.
2. As determined for a typical worst-case hour during periods of use.

**TABLE 7-3: Stationary Noise Sources<sup>1</sup>**

	Daytime <sup>2</sup>	Nighttime <sup>3</sup>
Hourly Equivalent Sound Level (Leq), dBA	50	45
Maximum Sound Level (Lmax), dBA	70	65

Notes:

1. Sound level measurements shall be made at a point on the receiving property nearest where the sound source at issue generates the highest sound level.
2. Daytime is the period from 8 a.m. to sunset, Monday through Friday; and from 10 a.m. to sunset, Saturday, Sunday and Holidays.
3. Nighttime is the period outside the hours of "daytime" above.

## GOALS, POLICIES, AND ACTIONS

**GOAL 7.1** Strive to achieve an acceptable noise environment for the environmental, health, and safety needs of present and future residents of Belmont.

**Policy 7.1-1** Update the City's Noise Ordinance as needed to be in conformance with the General Plan policies and noise standards.

**Action 7.1-1a:** Continue to limit hours for certain construction and demolition work to reduce construction-related noise exposure.

**Action 7.1-1b:** Address sources of excessive neighborhood noise that can cause nuisances for residents, such as gas leaf blowers, wireless telecommunication facilities, power sources, ventilation, and cooling facilities.

**Policy 7.1-2** Use the Community Noise Level Exposure Standards, shown in Table 7-1, as review criteria for new land uses. Require all new development that would be exposed to noise greater than the “normally acceptable” noise level range to reduce interior noise through design, sound insulation, or other measures.

**Policy 7.1-3** Require noise-reducing mitigation to meet allowable outdoor and indoor noise exposure standards in Table 7-2. Noise mitigation measures that may be approved to achieve these noise level targets include but are not limited to the following:

- Construct façades with substantial weight and insulation;
- Use sound-rated windows for primary sleeping and activity areas;
- Use sound-rated doors for all exterior entries at primary sleeping and activity areas;
- Use minimum setbacks and exterior barriers;
- Use acoustic baffling of vents for chimneys, attic and gable ends; and
- Install a mechanical ventilation system that provides fresh air under closed window conditions.

*Alternative acoustical designs that achieve the prescribed noise level standards may be approved, provided that a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces.*

**Policy 7.1-4** Exclude residential and noise-sensitive uses located in the Belmont

Village PDA from outdoor noise standards in Table 7-2, where it is determined application of noise mitigation measures will be detrimental to the realization of the General Plan's goals and policies to realize a vibrant activity center in the Village.

**Policy 7.1-5** Ensure that building regulations require that noise-generating appliances serving new multi-family or mixed-use residential development are located or adequately insulated to protect residents from the noise.

**Policy 7.1-6** Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located in a noise-impacted environment, such as along an arterial street or adjacent to a noise-producing use.

**Policy 7.1-7** For transportation projects subject to City approval, require that the project sponsor mitigate noise created by new transportation and transportation-related stationary noise sources, including roadway improvement projects, so that resulting noise levels do not exceed the City's adopted standards for noise-sensitive land uses.

**Policy 7.1-8** Continue to enforce applicable Federal and State Noise Insulation Standards (CCR, Title 24) and noise requirements.

**Policy 7.1-9** Establish noise level performance standards for new equipment and vehicles purchased by the City consistent with the best available control technology (BACT) to minimize noise and vibration.

**Policy 7.1-10** Require developers of new development anticipated to generate a substantial amount of vibration during construction to implement mitigation practices to reduce vibration, which can include: operating heavy equipment as far as practical from residential uses; using smaller bulldozers (operating weight less than 20,000 pounds) when grading must occur within approximately 50 feet of residential uses or other vibration sensitive uses; and using quiet pile driving technology when feasible.

**Policy 7.1-11** Require development projects to include mitigation measures to protect the development from ground borne vibration from the railway if located within 120 feet of the centerline of Caltrain rail tracks. *See Policy 6.5-4 in the Environmental Sustainability, Health, and Safety chapter of the Belmont Village Specific Plan.*

**GOAL 7.2** Protect noise-sensitive land uses, such as schools, hospitals, and senior care facilities, from encroachment of and exposure to excessive levels of noise.

**Policy 7.2-1** Use the noise-sensitive land uses and transportation noise sources table (Table 7-2) and Future Noise Contours map (Figure 7-3) as criteria to determine acceptability of noise-sensitive land uses. Do not permit new noise-sensitive uses—including schools, hospitals, and places of worship—where noise levels are “normally unacceptable” or higher, if alternative locations are available for the uses in the city.

**GOAL 7.3** Continue to work with other agencies, airports, and jurisdictions to reduce noise levels in Belmont created by their operations.

**Policy 7.3-1** Work with Caltrans, Caltrain, SamTrans, and other agencies to mitigate transportation-related noise impacts on residential areas and sensitive uses. This may include encouraging installation of sound barriers or bus stop relocation in selected locations.

**Policy 7.3-2** Continue to work with the San Carlos Airport in improving and implementing its noise abatement program.

**Policy 7.3-3** Continue to participate in the SFO Roundtable or any successors to ensure aircraft-related noise from SFO is managed for the City of Belmont.

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